

Remarks/Arguments

In this Response claims 1 and 10 are amended. These amendments are fully supported by the originally filed application. No new matter has been added.

Claims 1-10 and 16-28 are presented for examination.

Specification

The Applicants have amended paragraph [0018]. Support for these amendments to the specification is found throughout the originally submitted specification (for example, Figure 3). No new matter has been added.

Claim Objections

Claims 6 and 24 are objected to because of informalities as being not clearly understood for failing to identify “cold form thermal interface material” used for the purpose. The Applicants disagree. As stated in MPEP § 2173.02 Clarity and Precision,

Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

(A) The content of the particular application disclosure;

(B) The teachings of the prior art; and

(C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

The “cold form Thermal Interface Material (TIM)” is a “cold form” of “TIM” and both terms are general terms used in the prior art or by one possessing the ordinary level of skill in the pertinent art. Although the Applicants do not perform a search of each disclosure, there are quite a few patents of which title includes “cold forming” method or “Thermal Interface Material.” This means that these terms can be clearly understood at least in light of (B) and/or (C). Therefore, the Applicants respectfully request that the Examiner reconsider this objection of claims 6 and 24.

Rejections Under 35 U.S.C. § 102

In the Office Action claims 1-10 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ma et al. (U.S. 6,794,223) (hereinafter "Ma"). Claim 1 is amended. These amendments are fully supported by the originally filed application. See, for example, Figure 3 and paragraph [0018]. No new matter has been added.

Claim 1, as amended, recites an apparatus, comprising:

- a die carrier having a surface;
- a heat spreader lid having a surface parallel to the surface of the die carrier, the heat spreader lid mounted on the die carrier to form a lid cavity;
- an integrated circuit (IC) die mounted on the die carrier and within the lid cavity; and
- a cured mold compound disposed to fill the lid cavity and to at least partially surround the IC die, the cured mold compound being in contact with the surface of the die carrier and the surface of the heat spreader lid.

As can be seen, claim 1 recites, among other things, "cured mold compound being in contact with the surface of the die carrier and the surface of the heat spreader lid," wherein both surfaces are parallel each other.

On the other hand, Ma teaches encapsulation material 340 (cured mold compound) filled in the gap between the die 330, the substrate 310 (die carrier), and the heat spreader 320 (heat spreader lid). Although Ma teaches the encapsulation material 340 (cured mold compound) in contact with a surface of the heat spreader 320 (heat spreader lid) that is perpendicular to the surface of the substrate 310 (die carrier), Ma does not teach the encapsulation material 340 (cured mold compound) being in contact with a surface of the heat spreader 320 (heat spreader lid) that is parallel to the surface of the substrate 310 (die carrier) as recited in claim 1. For at least these reasons, claim 1 is allowable over Ma.

Claims 2-10 depend from claim 1 and are allowable over Ma for at least the same reasons given above with respect to claim 1. The Applicants respectfully request that the Examiner reconsider this rejection of these claims.

The Applicants also would like the Examiner note that Ma does not preclude patentability under § 103 due to an obligation of Ma and Applicants to assign to a common person/subject. Specifically, the subject matter of Ma and the instant application were subject to an obligation of assignment to Intel Corporation of Santa Clara, California, said obligation existing at the time of invention of the subject matter of this application and evidenced by the common assignment of the applications to Intel Corporation. See § 103(c) and M.P.E.P. § 706.02(I)(1). Therefore claims 1-10 are allowable under § 103 in addition to under § 102.

Rejections Under 35 U.S.C. § 103

In the Office Action claims 16-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ma in view of Low et al. (U.S. 6,404,626)(hereinafter "Low").

Applicants respectfully assert that Ma does not preclude patentability under § 103 due to an obligation of Ma and Applicants to assign to a common person/subject. Specifically, the subject matter of Ma and the instant application were subject to an obligation of assignment to Intel Corporation of Santa Clara, California, said obligation existing at the time of invention of the subject matter of this application and evidenced by the common assignment of the applications to Intel Corporation. See § 103(c) and M.P.E.P. § 706.02(I)(1). For at least this reason, Applicants respectfully request withdrawal of the rejection of claims 16-28 under § 103.

Conclusion

For these reasons, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present paper, the Examiner is kindly requested to contact the undersigned at 503-796-2084. If any fees are due in connection with filing this paper, the Commissioner is authorized to charge Deposit Account No. 500393.

Respectfully submitted,
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